

IN THE CLAIMS

Please cancel claims 24-27, 40-44, 47-58, 67-76, 80-84, 86, and 93-94 without prejudice or disclaimer. Please amend claims 90 and 95 as follows:

1-16. (canceled)

17. (previously amended) A non-naturally occurring composition of matter comprising a protein complex possessing nucleic acid polymerase enhancing activity, the complex comprising a plurality of subunits wherein at least one subunit is a *P.*

furiosus protein selected from at least one of:

a protein encoded by a nucleic acid having the nucleotide sequence of SEQ ID NO: 70 or a nucleic acid that hybridizes to the complement of the nucleic acid having the nucleotide sequence of SEQ ID NO: 70, wherein the hybridization conditions comprise incubation in 5x SSC and 50% formamide at 42°C, and washing in 0.1x SSC and 0.1% sodium dodecyl sulfate at 60°C; and

a protein having a sequence of amino acids comprising the amino acid sequence of SEQ ID NO:71.

18-45. (canceled)

46. (previously amended) An antibody that binds to a protein having an amino acid sequence comprising at least one of SEQ ID NO: 19 and 71.

47-58. (canceled)

59. (previously amended) A protein produced from a cell containing a DNA construct comprising a sequence encoding the amino acid sequence of SEQ ID NO: 71

operably linked to an expression vector, wherein the protein is in monomeric, dimeric, or multimeric form.

60. (previously amended) The protein of claim 59, wherein the cell is a bacterial cell.

61. (previously amended) A polymerase-enhancing complex comprising the protein of claim 59.

62. (previously amended) An antibody that binds to the protein of claim 59.

63. (previously amended) An antibody that binds to a protein comprising the amino acid sequence of SEQ ID NO: 71, wherein the protein is part of the polymerase-enhancing complex of claim 61.

64. (previously amended) The protein of claim 59, wherein the protein is produced as a fusion protein.

65. (previously amended) The protein of claim 64, wherein the fusion protein comprises a calmodulin binding peptide.

66. (previously amended) The protein of claim 65, wherein the expression vector is pCAL-n-EK.

67-76. (canceled)

77. (previously amended) A non-naturally occurring composition of matter comprising a protein comprising the amino acid sequence of SEQ ID NO: 71.

78. (previously amended) The composition of matter of claim 77, wherein the protein is in monomeric, dimeric, or multimeric form.

79. (previously amended) The composition of matter of claim 77, wherein the protein is present in a protein complex.

80-84. (canceled)

85. (previously amended) A protein having polymerase-enhancing factor (PEF) activity comprising the amino acid sequence of SEQ ID NO: 73.

86. (canceled)

87. (original) A PCR enhancing, protein extract comprising purified proteins from *Thermus thermophilis* that possesses dUTPase activity.

88. (original) A composition comprising a protein extract as claimed in claim 87.

89. (original) A composition comprising a protein extract as claimed in claim 87, further comprising a thermostable DNA polymerase.

90. (currently amended) A protein extract of claim 87, which comprises a protein that can be bound by an antibody specific for a recombinant ~~Pfu~~ P. furiosus protein comprising the amino acid sequence of SEQ ID NO: 71.

91. (original) A composition comprising a protein extract of claim 90 and a thermostable DNA polymerase.

92. (original) A protein extract of claim 90, wherein the protein possesses a molecular weight of approximately 92 kD in an SDS-PAGE gel.

93-94. (canceled)

95. (currently amended) A non-naturally occurring composition of matter comprising a polymerase-enhancing protein encoded by a nucleic acid that hybridizes to the complement of the ~~nucleotide sequence~~ nucleic acid of SEQ ID NO: 70, wherein the hybridization conditions comprise incubation in 5x SSC and 50% formamide at 42°C, and washing in 0.1x SSC and 0.1% sodium dodecyl sulfate at 60°C overnight.

96. (canceled)

97. (original) A protein extract of claim 87, which comprises a protein that possess a molecular weight of approximately 24kD in an SDS-PAGE gel.

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